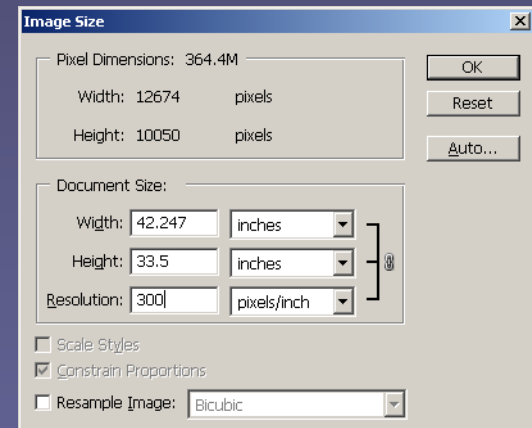
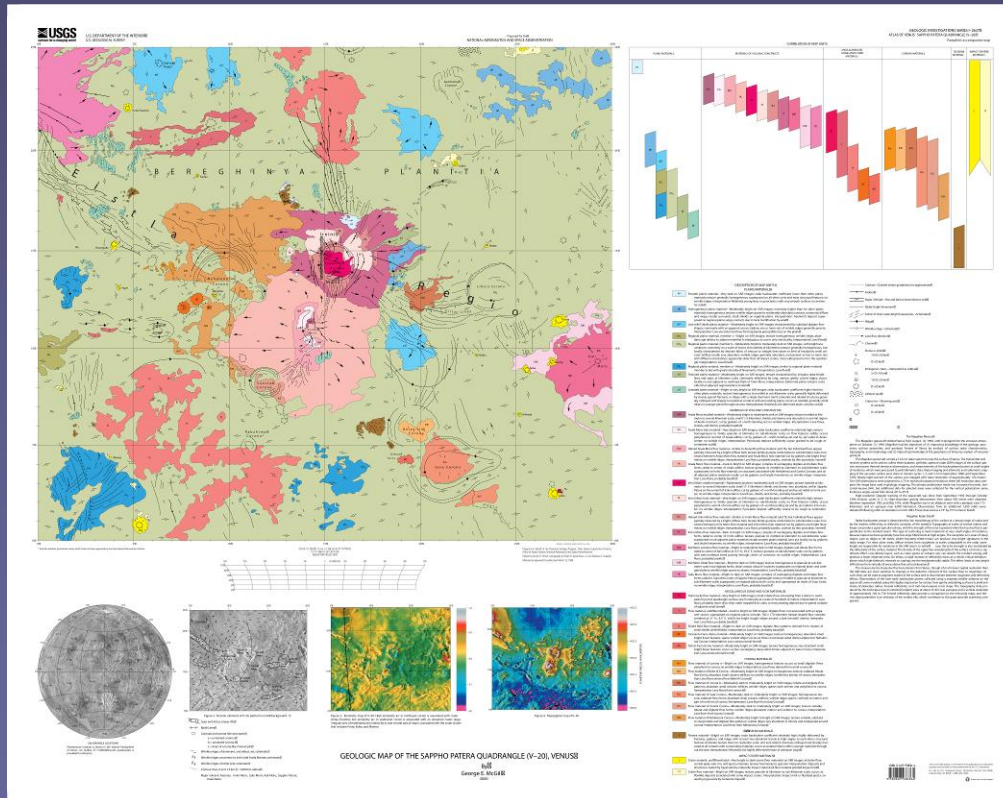


# Geologic Map Conversion

Convert Geologic Maps from Illustrator  
format to an ArcGIS Geodatabase

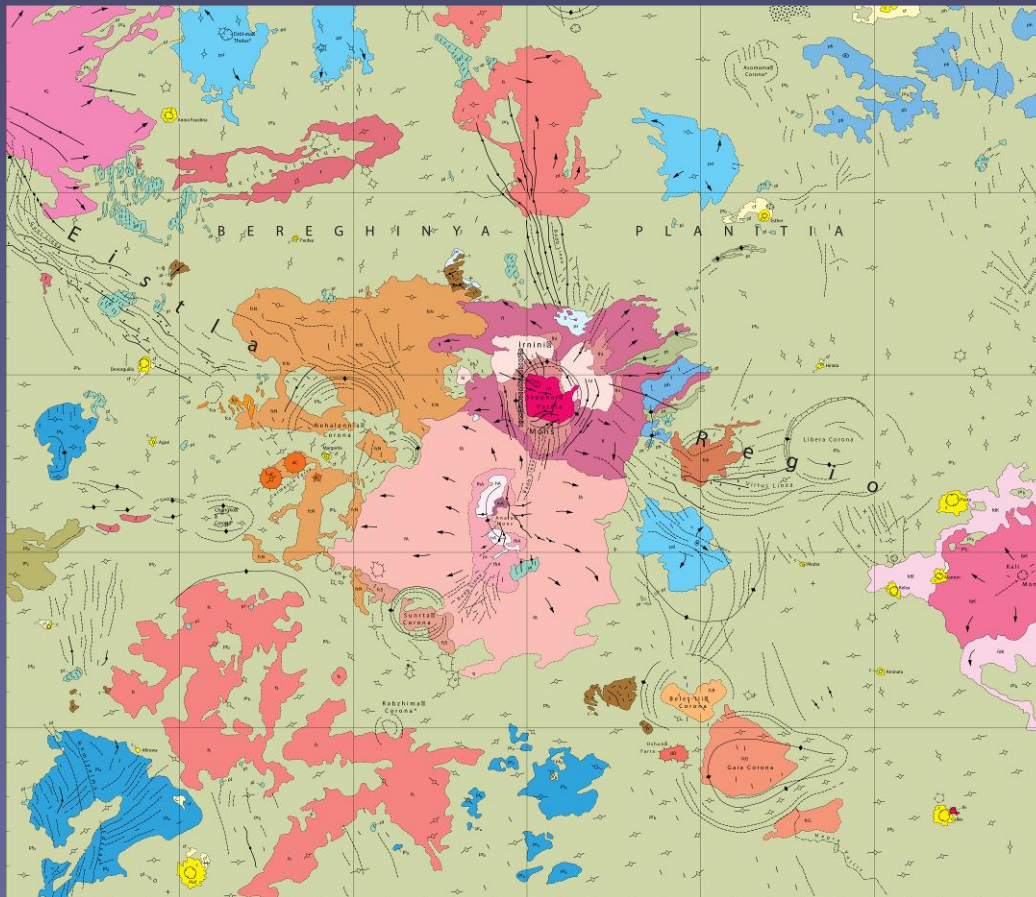
# Photoshop

- Open \*.ai map file in Photoshop, turn off anti alias if it crashes.
- Set image size to 300 dpi, flatten image.
- Save out to \*.Png



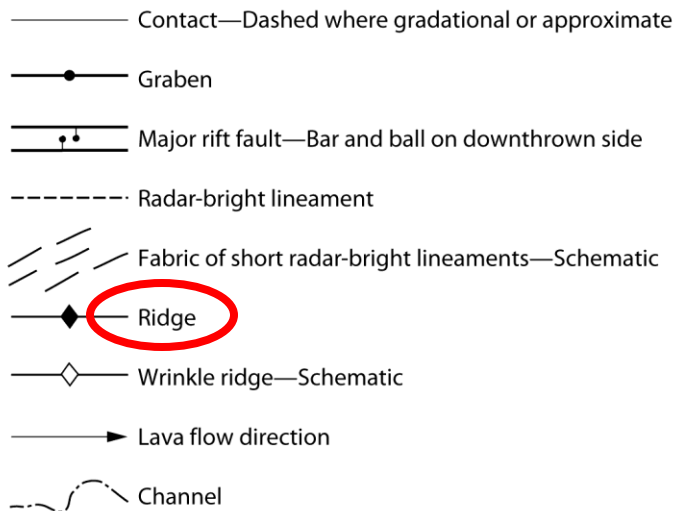
# Photoshop

- Clip out map area, keeping outside edge of grid. Save file as a new Tiff image.



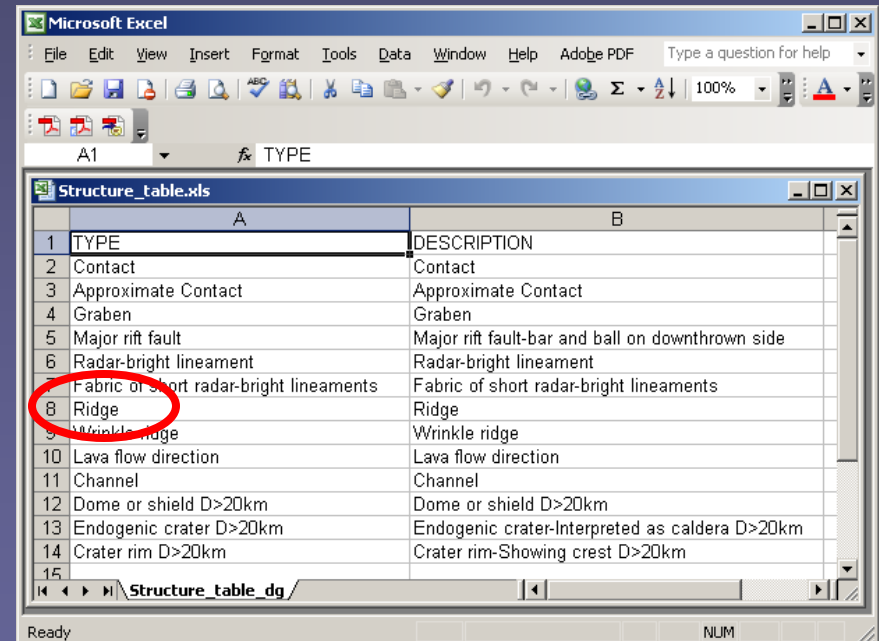
# Copy/Paste Structure Attributes from Illustrator file into Excel

Later you will use 'Table to Domain' in ArcMap



Legend of geological features:

- Contact—Dashed where gradational or approximate
- Graben
- Major rift fault—Bar and ball on downthrown side
- Radar-bright lineament
- Fabric of short radar-bright lineaments—Schematic
- Ridge (circled in red)
- Wrinkle ridge—Schematic
- Lava flow direction
- Channel



Microsoft Excel window showing a table with geological features. The table is titled 'Structure\_table.xls' and has two columns: 'TYPE' and 'DESCRIPTION'. The 'Ridge' entry is circled in red.

TYPE	DESCRIPTION
Contact	Contact
Approximate Contact	Approximate Contact
Graben	Graben
Major rift fault	Major rift fault-bar and ball on downthrown side
Radar-bright lineament	Radar-bright lineament
Fabric of short radar-bright lineaments	Fabric of short radar-bright lineaments
Ridge	Ridge
Wrinkle ridge	Wrinkle ridge
Lava flow direction	Lava flow direction
Channel	Channel
Dome or shield D>20km	Dome or shield D>20km
Endogenic crater D>20km	Endogenic crater-Interpreted as caldera D>20km
Crater rim D>20km	Crater rim-Showing crest D>20km

# Copy/Paste Geo Unit Attributes from Illustrator file into Excel

MATERIALS OF VOLCANIC CONSTRUCTS	
mA	Anala Mons mottled material—Moderately bright to moderately dark on SAR images; texture mottled at kilometer to several kilometer scale; small (1–5 kilometer) shields and domes very abundant; in summit region of Anala construct; cut by grabens of ~north-trending set; no wrinkle ridges. Interpretation: Lava flows, shields, and domes, probably basaltic
hA	Anala Mons halo material—Very bright on SAR images; radar backscatter coefficient relatively high; texture homogeneous to faintly granular at kilometer to sub-kilometer scale; no flow features visible; occurs peripheral to summit of Anala edifice; cut by grabens of ~north-trending set and by set radial to Anala center; no wrinkle ridges. Interpretation: Pyroclastic deposit sufficiently coarse grained to be rough at centimeter scale
fhA	Haloed Anala Mons flow material—Similar to Anala Mons flow material (unit fA), but individual flows appear partially obscured by a bright, diffuse halo; texture faintly granular at kilometer to sub-kilometer scale; transitional between Anala Mons flow material and Anala Mons halo material; cut by grabens and bright lineaments; no wrinkle ridges. Interpretation: Lava flows, probably basaltic, overlain by thin pyroclastic veneer
fA	Anala Mons flow material—Dark to bright on SAR images; complex of overlapping digitate and lobate flow forms radial to center of Anala edifice; texture granular to mottled at kilometer to sub-kilometer scale; superposed on Irnini flow material, on structures associated with Nehalennia and Sunrta Coronae, and on all adjacent plains materials; locally cut by grabens and bright lineaments; no wrinkle ridges. Interpretation: Lava flows, probably basaltic
ml	Irnini Mons mottled material—Moderately bright to moderately dark on SAR images; texture mottled at kilometer to several kilometer scale; small (1–5 kilometer) shields and domes very abundant; within Sappho Patera on the summit of Irnini edifice; cut by grabens of ~north-trending set and by set radial to Irnini center; no wrinkle ridges. Interpretation: Lava flows, shields, and domes, probably basaltic
hl	Irnini Mons halo material—Very bright on SAR images; radar backscatter coefficient relatively high; texture homogeneous to faintly granular at kilometer to sub-kilometer scale; no flow features visible; occurs peripheral to summit of Irnini edifice; cut by grabens of ~north-trending set and by set radial to Irnini center; no wrinkle ridges. Interpretation: Pyroclastic deposit sufficiently coarse to be rough at centimeter scale
fhl	Haloed Irnini Mons flow material—Similar to Irnini Mons flow material (unit fl), but individual flows appear partially obscured by a bright, diffuse halo; texture faintly granular at kilometer to sub-kilometer scale; transitional between Irnini Mons flow material and Irnini Mons halo material; cut by grabens and bright lineaments; no wrinkle ridges. Interpretation: Lava flows, probably basaltic, overlain by thin pyroclastic veneer
fl	Irnini Mons flow material—Dark to bright on SAR images; complex of overlapping digitate and lobate flow forms radial to center of Irnini edifice; texture granular to mottled at kilometer to sub-kilometer scale;



Microsoft Excel

File Edit View Insert Format Tools Data Window Help Adobe PDF Type a question for help

B1 DESCRIPTION

Uname\_table.xls

A	B	C
UNAME	DESCRIPTION	MAJOR_GRP
1		
2	ps	Smooth plains material
3	ph	Homogeneous plains material
4	psl	Low-relief shield plains material
5	prc	Regional plains material, member c
6	prb	Regional plains material, member b
7	pra	Regional plains material, member a
8	pt	Textured plains material
9	pl	Lineated plains material
10	mA	Anala Mons mottled material
11	hA	Anala Mons halo material
12	fhA	Haloed Anala Mons flow material
13	fA	Anala Mons flow material
14	ml	Irnini Mons mottled material
15	hl	Irnini Mons halo material
16	fhl	Haloed Irnini Mons flow material
17	fl	Irnini Mons flow material
18	fplK	Kali Mons proximal flow material
19	fdK	Kali Mons distal flow material
20	fG	Gula Mons flow material
21	fh	Hummocky flow material
22	f	Flow material, undifferentiated
23	fs	Shield field flow material
24	dC	Carmenta Farra dome material
25	dO	Oshun Farra dome material
26	fca	Flow material of corona a
27	fcB	Flow material of Belet-Ili Corona
28	fcB	Flow material of corona b
29	fcG	Flow material of Gaia Corona
30	fcS	Flow material of Sunrta Corona
31	fcN	Flow material of Nehalennia Corona
32	t	Tessera material
33	c	Crater material, undifferentiated
34	cf	Crater flow material
35		
36		

Uname\_table\_dg/

Ready NUM

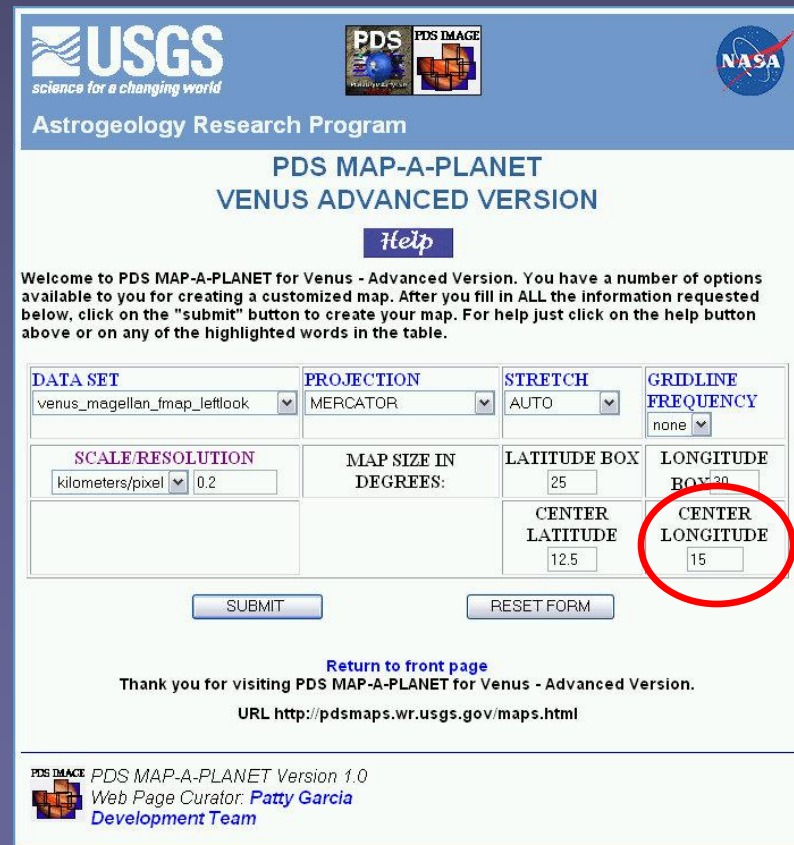


# Convert Map Info into .dbf Tables

- Save Excel file to .dbf format – some attributes may be truncated and will need to be updated in the ArcCatalog Geodatabase Domain.

# Update Map Image Base

- Order image from MAP-A-PLANET as a Tiff. Try for a 200 MB image size, request a world file.



**USGS**  
science for a changing world

**PDS** **PDS IMAGE**

**NASA**

Astrogeology Research Program

**PDS MAP-A-PLANET  
VENUS ADVANCED VERSION**

[Help](#)

Welcome to PDS MAP-A-PLANET for Venus - Advanced Version. You have a number of options available to you for creating a customized map. After you fill in ALL the information requested below, click on the "submit" button to create your map. For help just click on the help button above or on any of the highlighted words in the table.

<b>DATA SET</b> venus_magellan_fmap_leftlook	<b>PROJECTION</b> MERCATOR	<b>STRETCH</b> AUTO	<b>GRIDLINE FREQUENCY</b> none
<b>SCALE/RESOLUTION</b> kilometers/pixel 0.2	<b>MAP SIZE IN DEGREES:</b>	<b>LATITUDE BOX</b> 25	<b>LONGITUDE BOX</b> 20
		<b>CENTER LATITUDE</b> 12.5	<b>CENTER LONGITUDE</b> 15

[Return to front page](#)

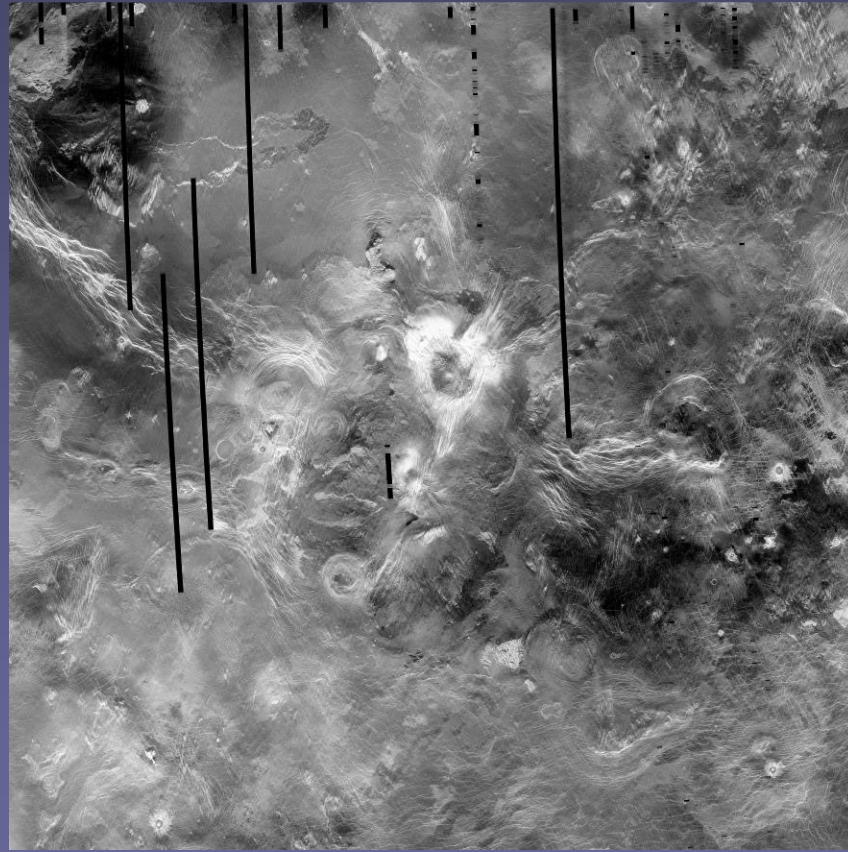
Thank you for visiting PDS MAP-A-PLANET for Venus - Advanced Version.

URL <http://pdsmaps.wr.usgs.gov/maps.html>

**PDS IMAGE** PDS MAP-A-PLANET Version 1.0  
Web Page Curator: [Patty Garcia](#)  
Development Team

Take note of CLON

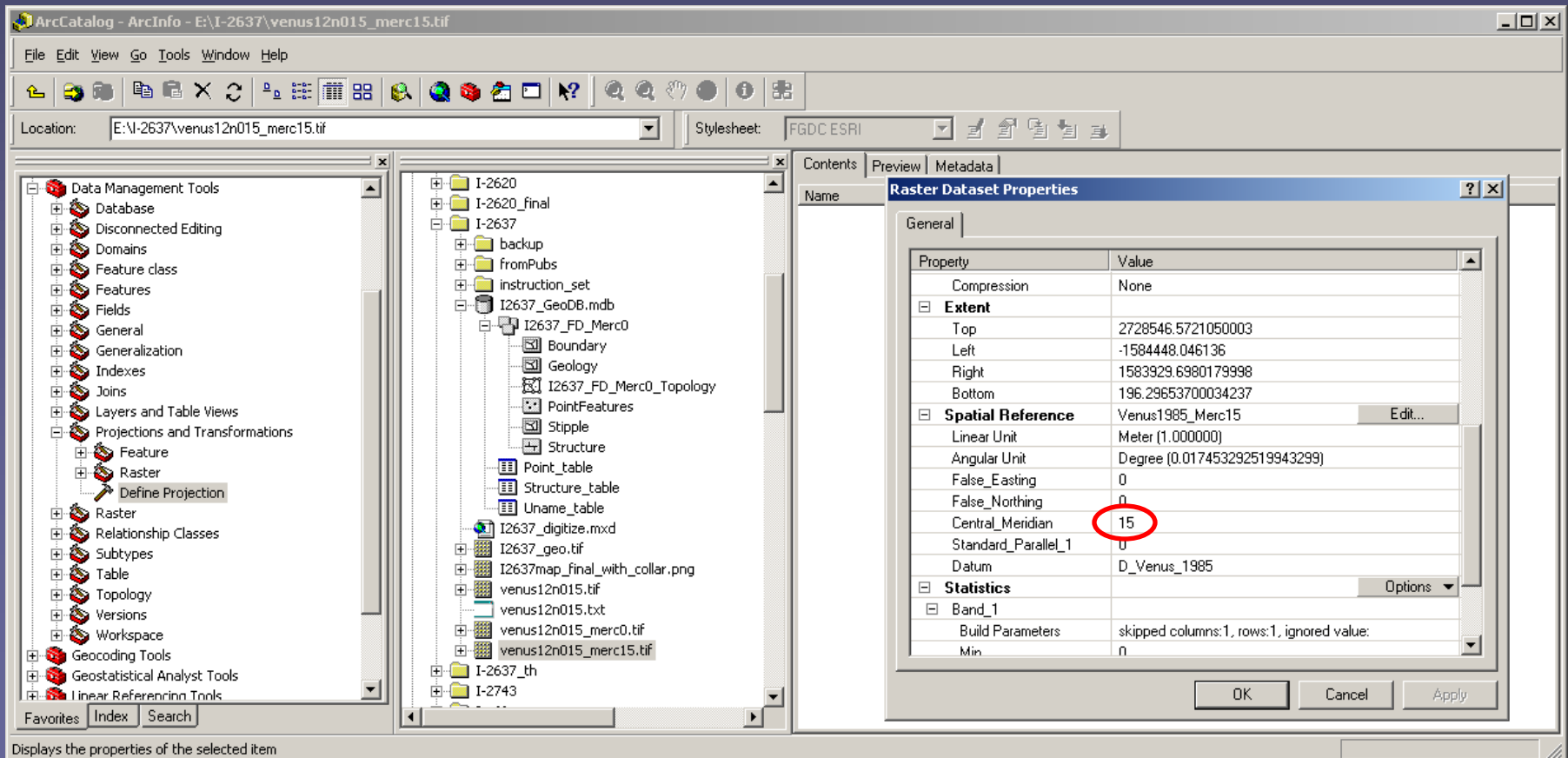
# Photoshop: Check New Image Base





# ArcCatalog: Set the MAP-A-PLANET Image Projection

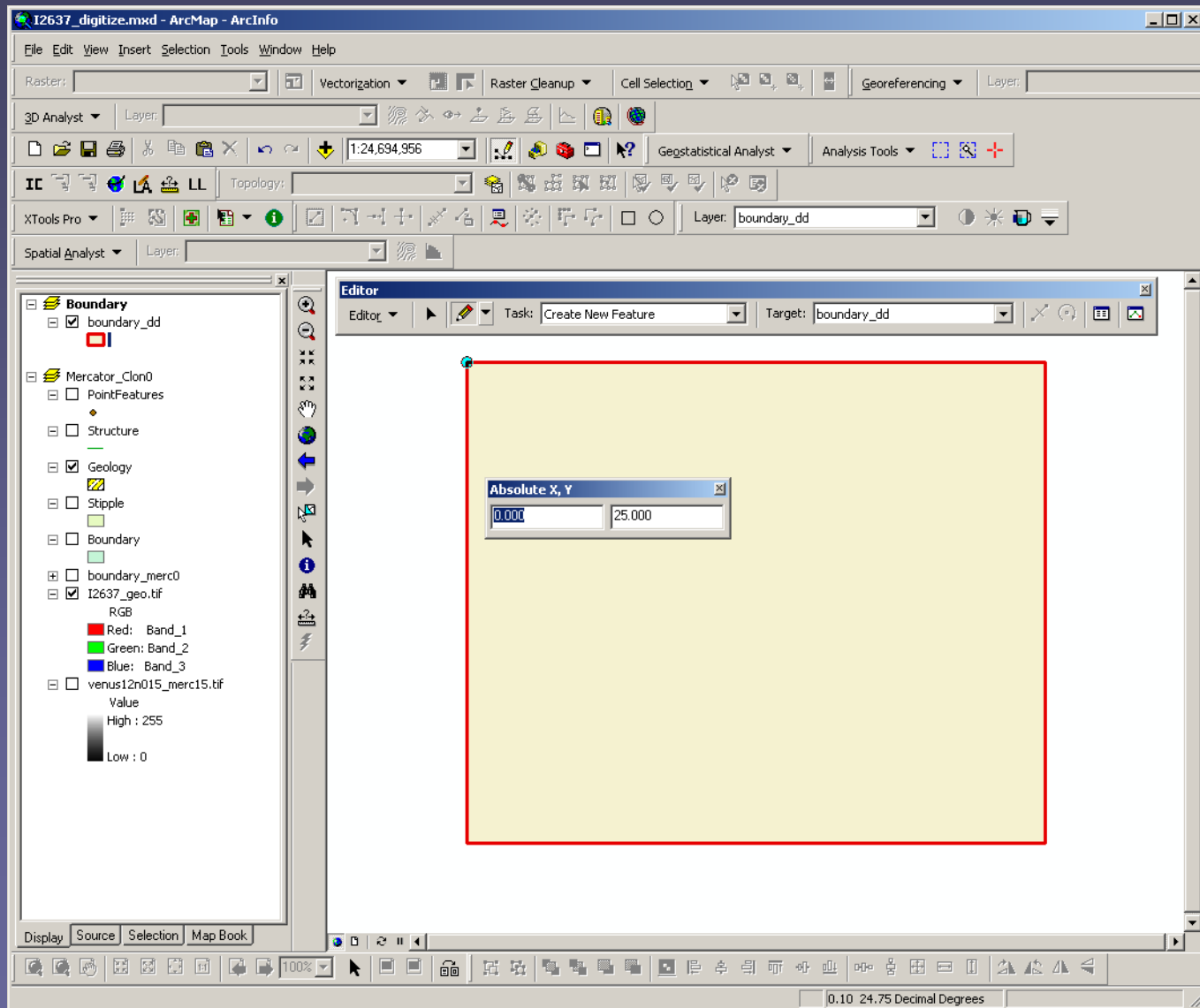
Use to reconcile different CLONs between ArcMap and MAP-A-PLANET when an image translation is needed.



# ArcMap

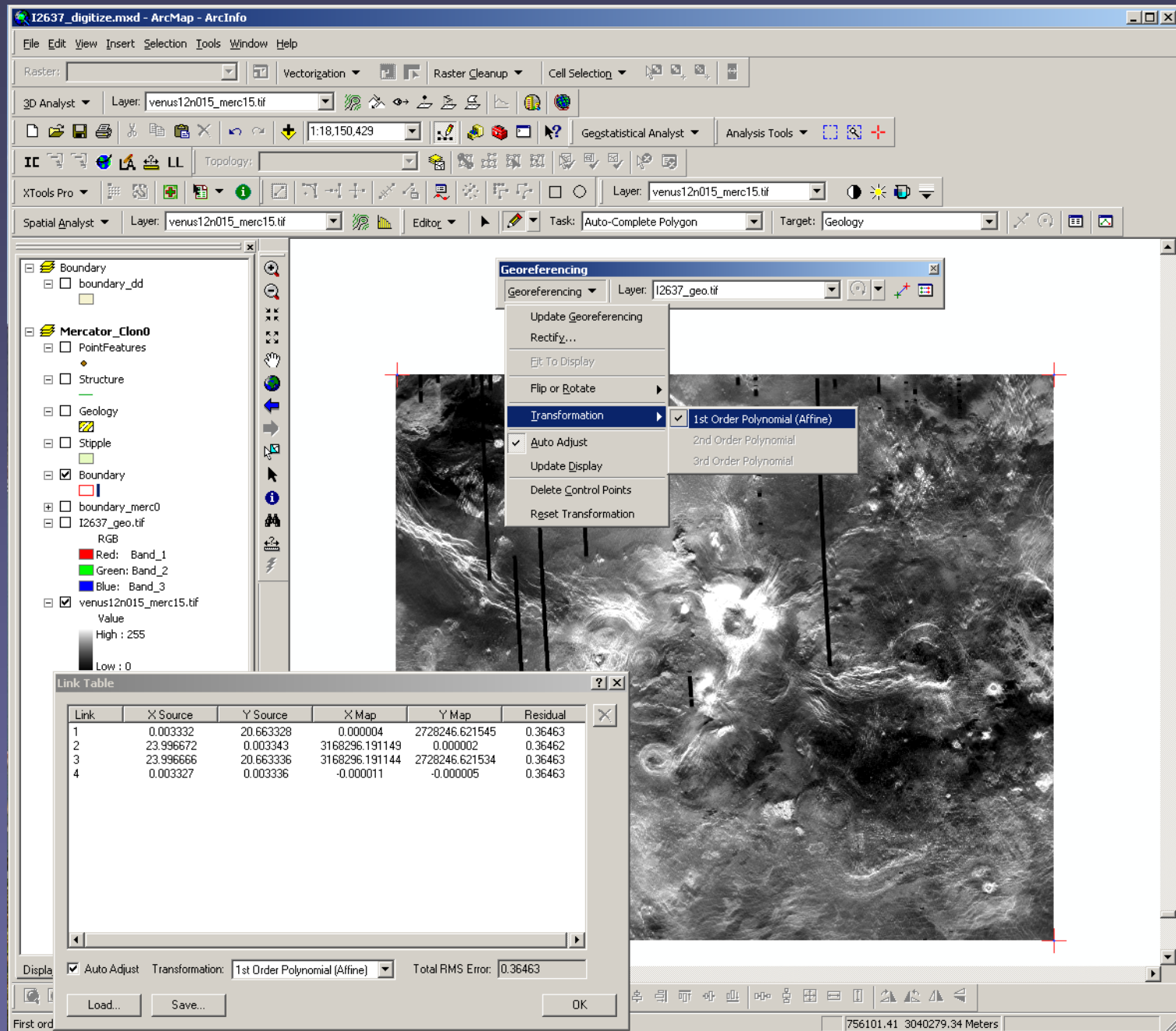
- Open a new project. Set the projection of the ArcMap Data Frame in decimal degrees.
- Create a new polygon shapefile to the exact extents of the existing map boundary.
- Export the boundary shapefile in projected meters.

# ArcMap: Create a polygon shapefile in decimal degrees using map extents



# Register geologic map image

- Register the clipped out Photoshop Tiff to the projected boundary shapefile – use ArcMap Georeferencing Toolbar.



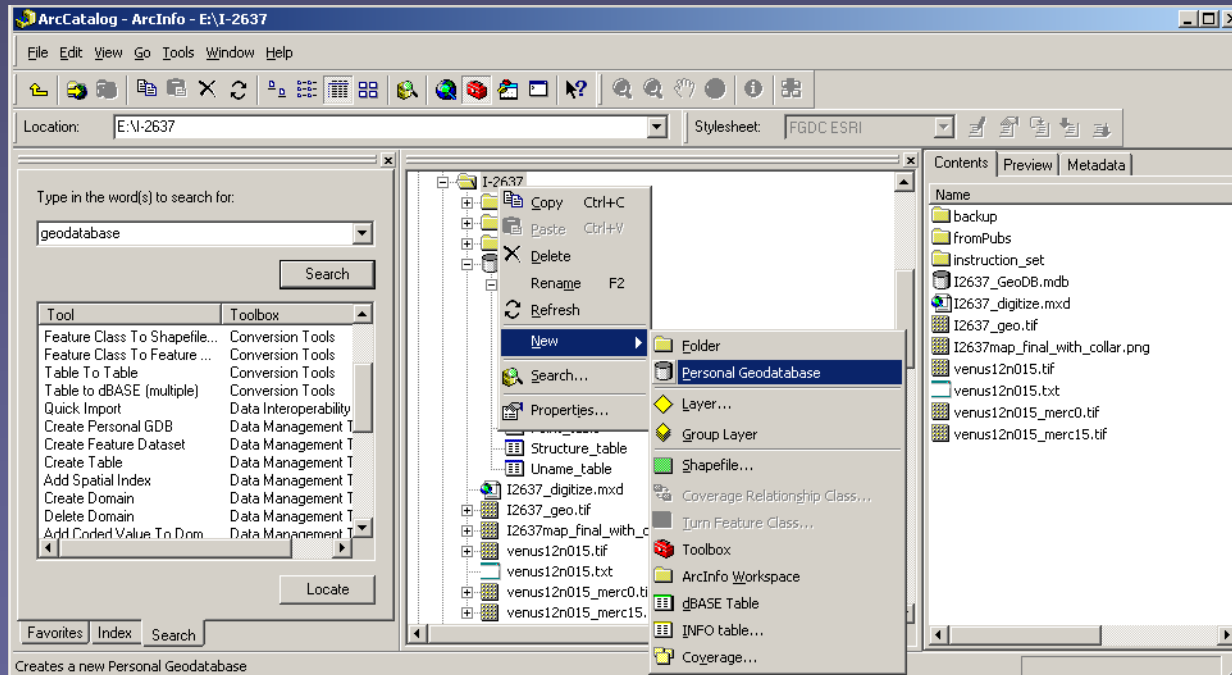


# Verify registration of boundary, geologic map, and old map image base using MAP-A-PLANET image

- Check registration of MAP-A-PLANET image against the georeferenced Photoshop map base image in ArcMAP

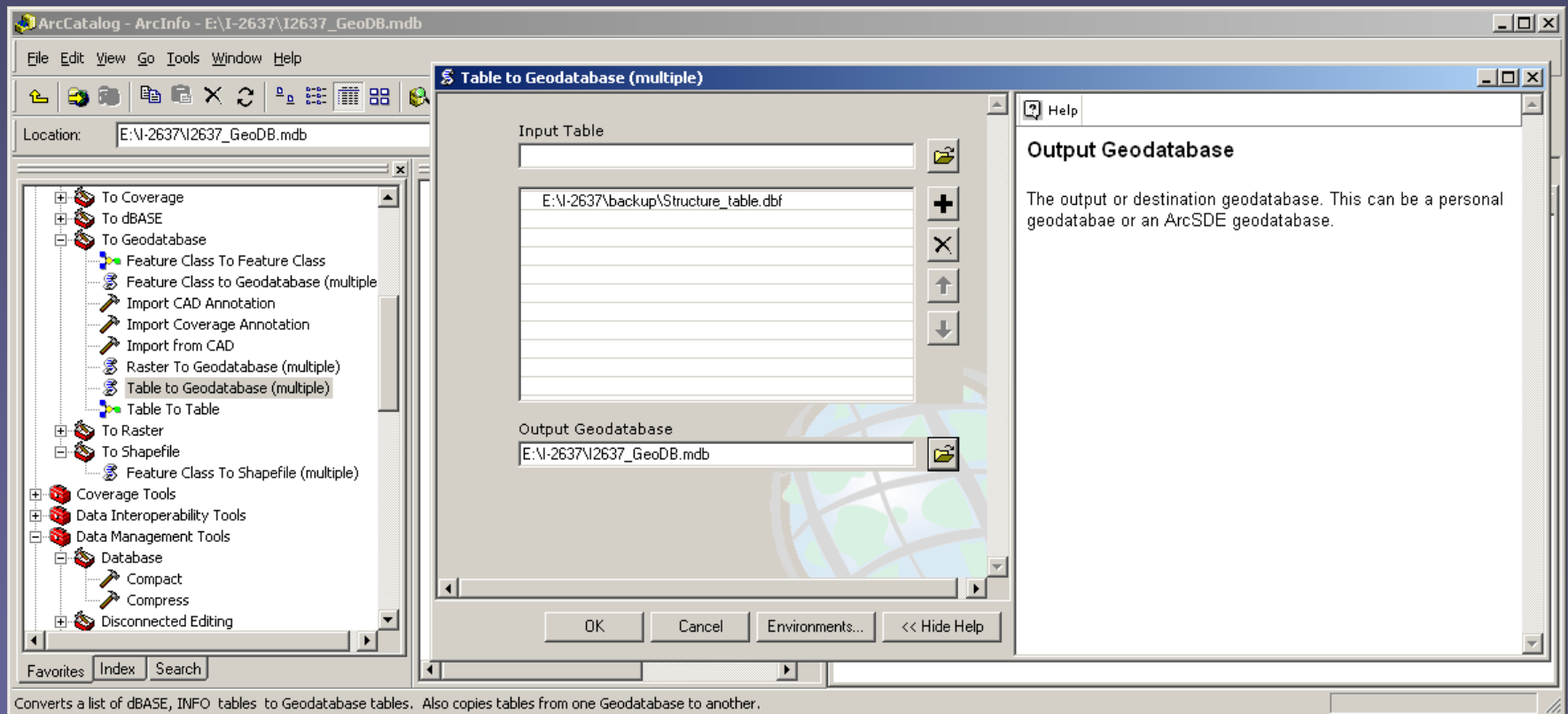
# ArcCatalog

- Create a Geodatabase.



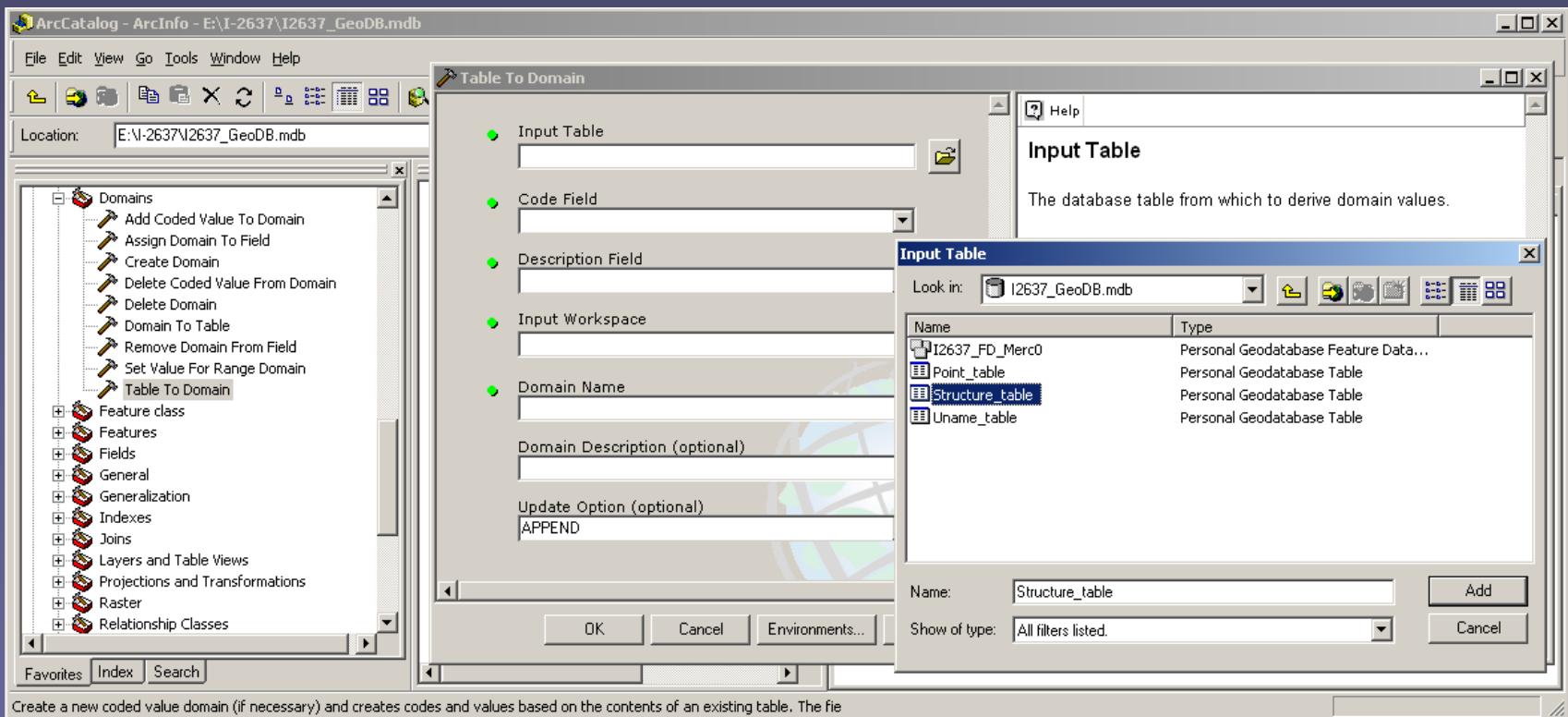
# Create Attribute Domains

ArcCatalog: Move \*.dbf Tables to Geodatabase



# Create Attribute Domains

ArcCatalog: Run Tool – Table to Domain



# Update Domain Attributes

Check for truncated attributes under 'Code' and 'Description' –Edit as necessary.

The screenshot shows the ArcCatalog interface with the 'Database Properties' dialog box open. The dialog has two tabs: 'General' and 'Domains'. The 'Domains' tab is active, displaying a table of domain attributes.

Domain Name	Description
MAJOR_GRP	MAJOR_GRP_DESCRIPTION
POINT	POINT_DESCRIPTION
STRUCTURE	STRUCTURE_DESCRIPTION
UNAME	UNAME_DESCRIPTION

Below the table, the 'Domain Properties' section shows the following settings:

- Field Type: Text
- Domain Type: Coded Values
- Split policy: Duplicate
- Merge policy: Default Value

The 'Coded Values' section displays a table of codes and descriptions:

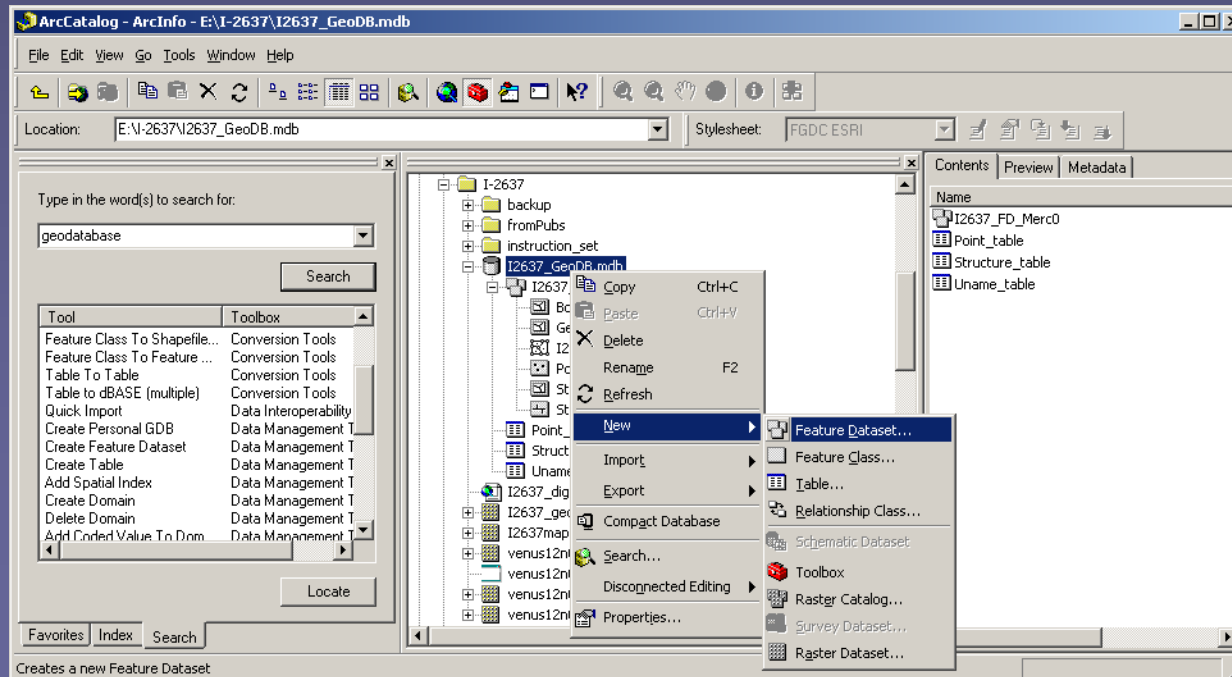
Code	Description
PLAINS MATERIALS	PLAINS MATERIALS
MATERIALS OF VOLC	MATERIALS OF VOLCANIC CONSTRUCTS
MISCELLANEOUS DO	MISCELLANEOUS DOME AND FLOW MATERI
CORONA MATERIAL S	CORONA MATERIAL S

The background shows the ArcCatalog tree view with the 'I2637\_GeoDB.mdb' database selected. The 'Data Management Tools' pane on the left lists various database management tasks.



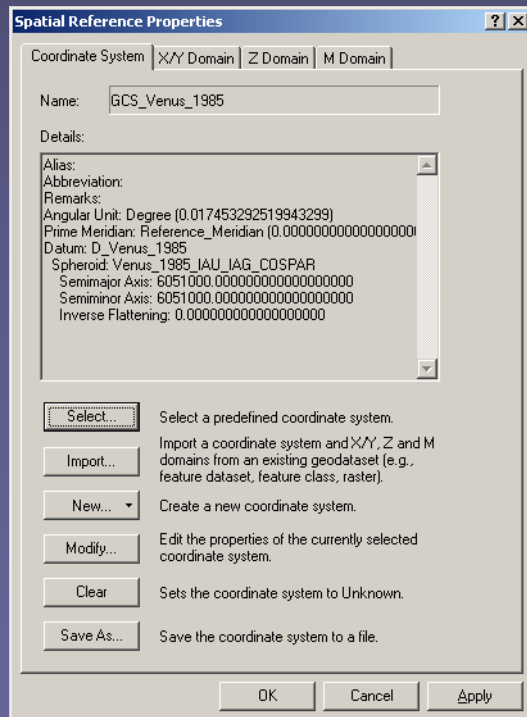
# ArcCatalog

- From within the Geodatabase, Create a Feature Dataset in projected meters. Use the geologic boundary file to import the projection or set it manually.



# Set Feature Dataset Parameters

## Set Coordinate System



**Spatial Reference Properties**

Coordinate System | **X/Y Domain** | Z Domain | M Domain

Name: GCS\_Venus\_1985

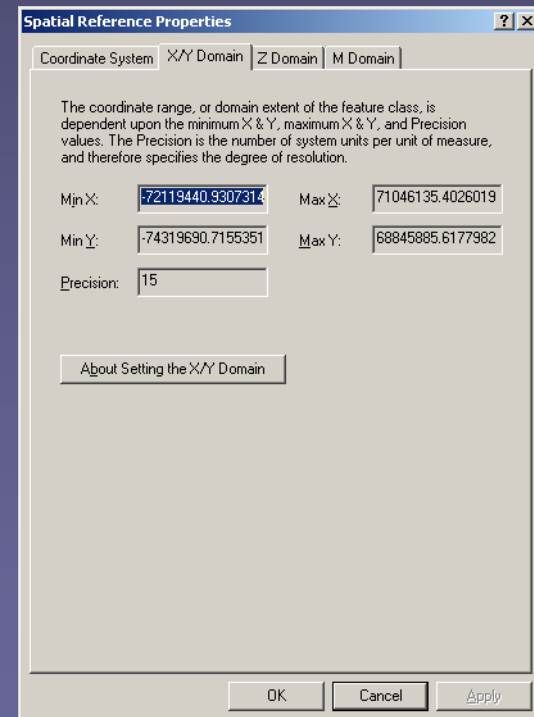
Details:

Alias:  
Abbreviation:  
Remarks:  
Angular Unit: Degree (0.017453292519943299)  
Prime Meridian: Reference\_Meridian (0.000000000000000000)  
Datum: D\_Venus\_1985  
Spheroid: Venus\_1985\_JAU\_JAG\_COSPAR  
Semimajor Axis: 6051000.000000000000000000  
Semiminor Axis: 6051000.000000000000000000  
Inverse Flattening: 0.000000000000000000

Select... Select a predefined coordinate system.  
Import... Import a coordinate system and X/Y, Z and M domains from an existing geodataset (e.g., feature dataset, feature class, raster).  
New... Create a new coordinate system.  
Modify... Edit the properties of the currently selected coordinate system.  
Clear Sets the coordinate system to Unknown.  
Save As... Save the coordinate system to a file.

OK Cancel Apply

Set X/Y Domain. Use map extents or calculate extents. This example is based on map extents plus a buffer.



**Spatial Reference Properties**

Coordinate System | **X/Y Domain** | Z Domain | M Domain

The coordinate range, or domain extent of the feature class, is dependent upon the minimum X & Y, maximum X & Y, and Precision values. The Precision is the number of system units per unit of measure, and therefore specifies the degree of resolution.

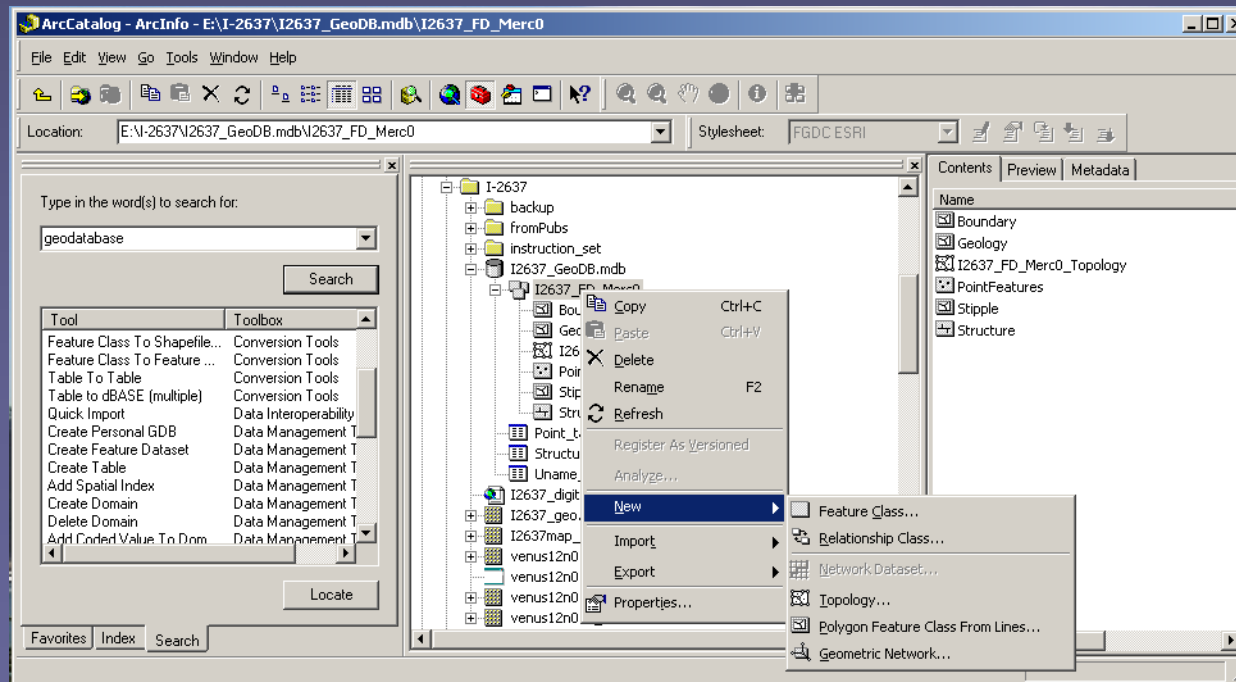
Min X: -72119440.9307314 Max X: 71046135.4026019  
Min Y: -74319690.7155351 Max Y: 68845885.6177982  
Precision: 15

About Setting the X/Y Domain

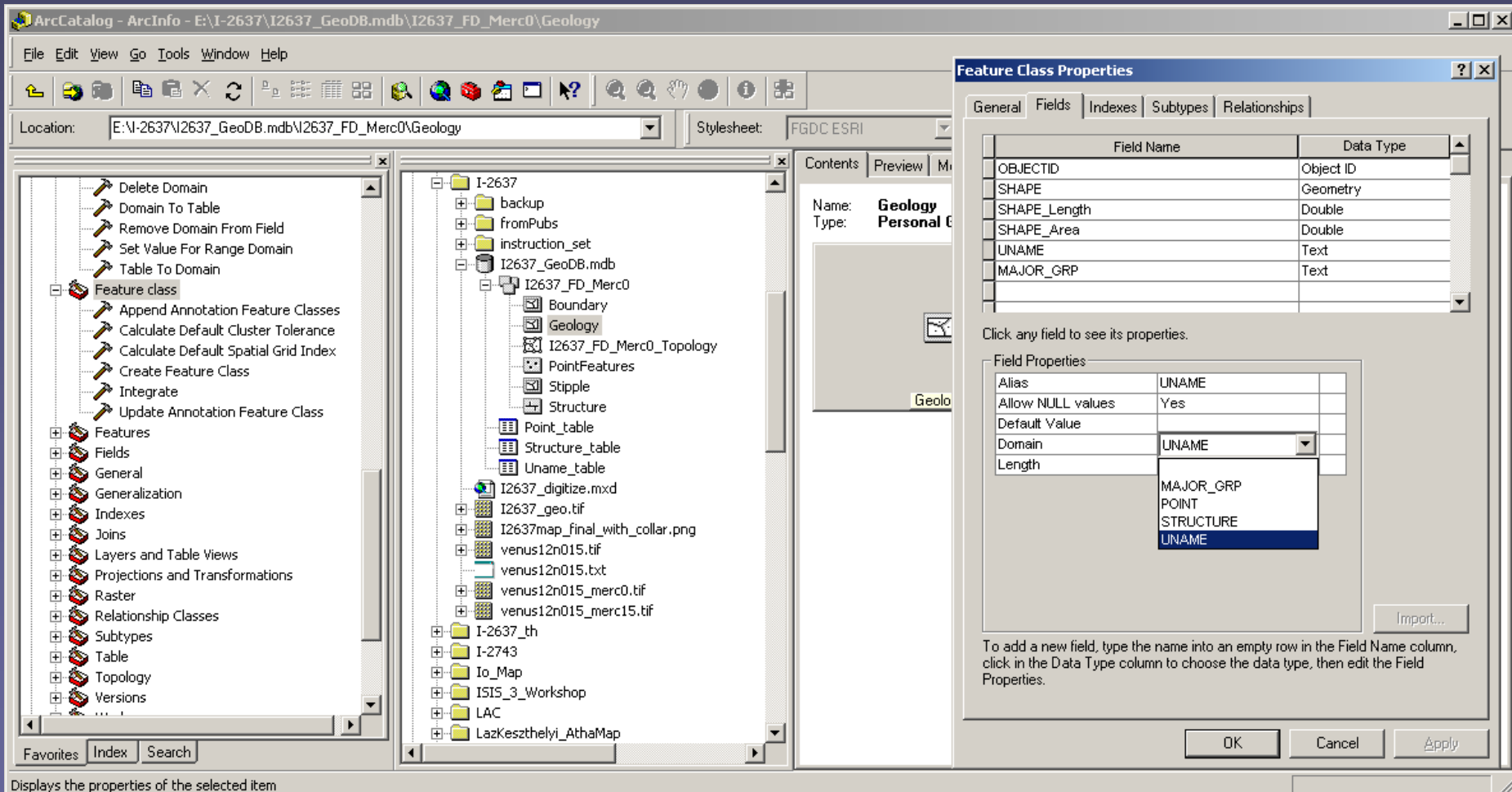
OK Cancel Apply

# ArcCatalog

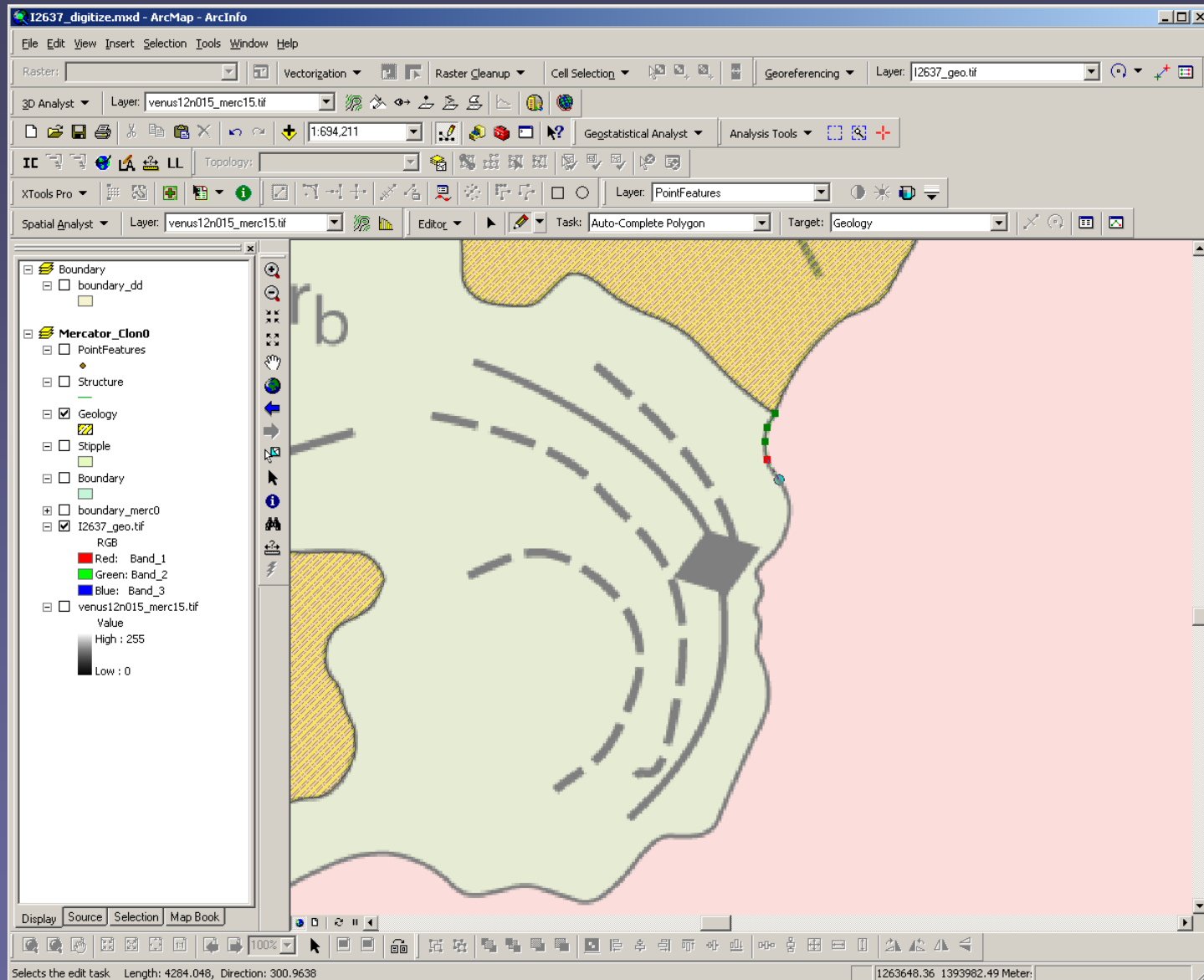
- Create Feature classes for Geology, Structure, and Point features.



# Add Fields to the Feature Classes, Assign Attribute Domains

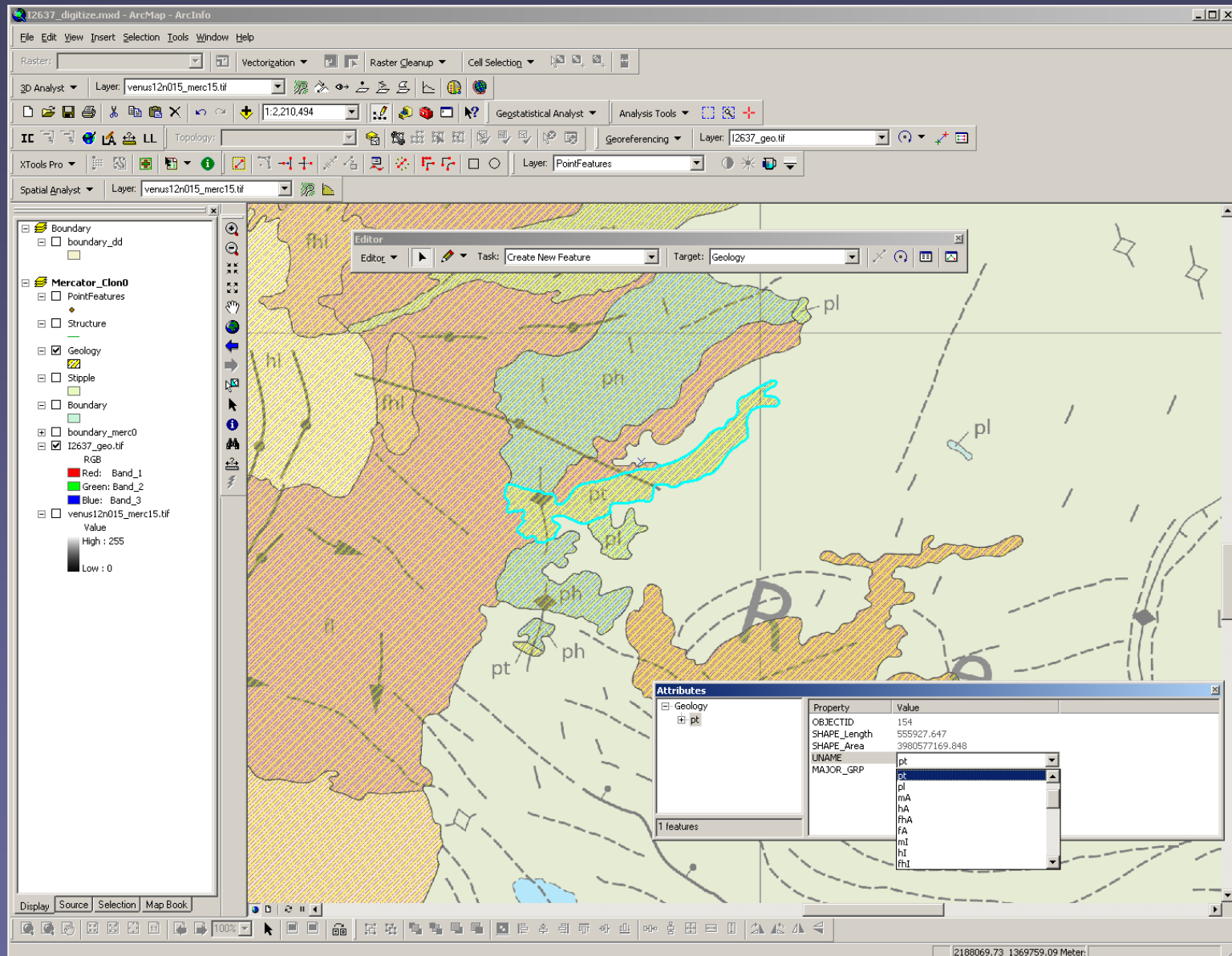


# ArcMap: Digitize Map





# ArcMap: Attribute Features



# Compare Mapped Geology to New Image Base

